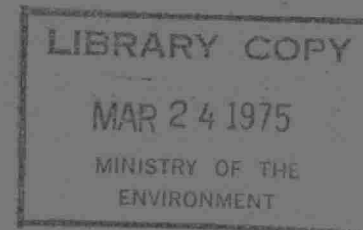


OPERATING SUMMARY

MIDLAND

WATER POLLUTION CONTROL PLANT

LABORATORY & RESEARCH UNIT
MINISTRY OF THE ENVIRONMENT



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Ontario

MINISTRY OF THE ENVIRONMENT

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ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, CENTRAL REGION
P. Cockburn

MANAGER, UTILITY OPERATIONS
A. Thomas

MIDLAND
WATER POLLUTION CONTROL PLANT

operated for
THE TOWN OF MIDLAND
by the

MINISTRY OF THE ENVIRONMENT

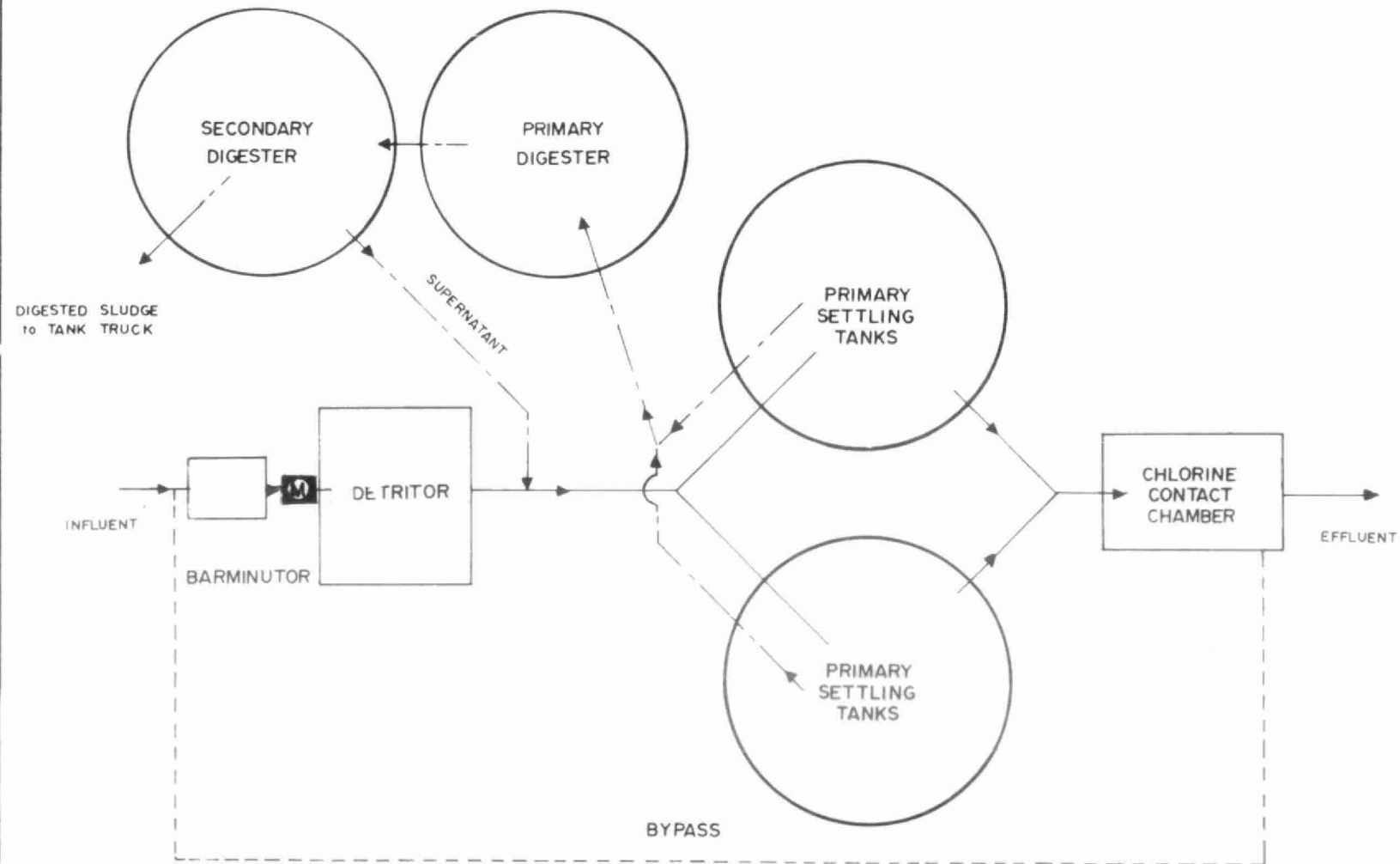
1973 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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TOWN OF MIDLAND WPCP



DESIGN DATA

PROJECT Town of Midland WPCP

PROJECT NO. 2-0146-63

TREATMENT Primary

DESIGN FLOW 1.25 mgd

DESIGN POPULATION 12,500

BOD - Raw Sewage 225 mg/l
- Removal 40%

SS - Raw Sewage 300 mg/l
- Removal 60%

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: One Model C

Grit Removal

Type: Dorr Detritor
Size: One 12' x 12' x 16"
(1,200 gal)
Retention: 1.38 min

Primary Sedimentation

Type: Dorr
Size: Two 50' dia x 8' swd
195,000 gal)
Retention: 3.75 hours
Loading: Surface, 319 gal/ft²/day
Weir, 3970 gal/ft/day

CHLORINATION

Type: W & T, Type A711 (Auto)
Size: One 1000 lb/day

Chlorine Contact Chamber

Size: Irregular (16,200 gal)
Retention: 18.7 min

OUTFALL

615' of 24" pipe to Georgian Bay

SLUDGE HANDLING

Digestion System - Two Stage

Primary --

Type: Babcock-Wilson
Draft tube mixers (2)
Size: One 30' dia x 22' (15,600
cu ft or 97,200 gal)
Loading: 4.3 lb/cu ft/mo

Secondary --

Type: Fixed steel cover
Size: One 30' dia x 21½' (15,200
cu ft or 94,600 gal)
Total Loading: 2.2 lb/cu ft/mo

PUMPING STATIONS

#1 Pumping Station

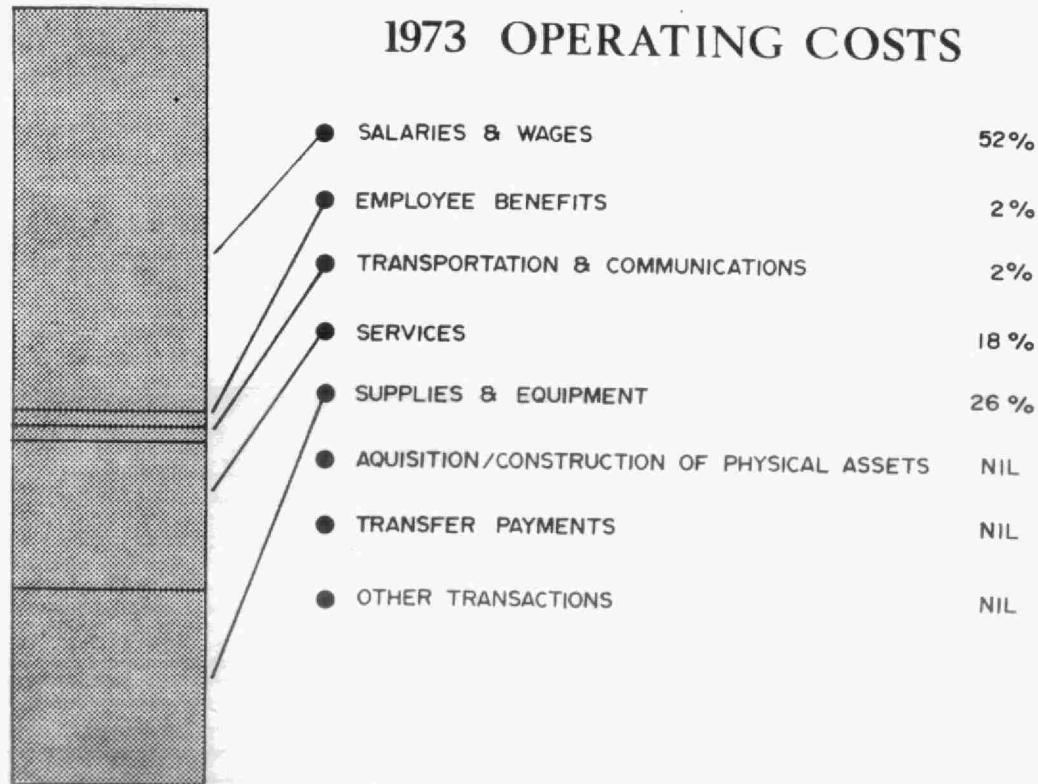
Type: Worthington
Size: Two 780 gpm @ 37' tdh
One 2600 gpm @ 60' tdh

#2 Pumping Station

Type: Flygt (submersible)
Size: Two 83 gpm @ 30' tdh

ANNUAL COSTS

1973 OPERATING COSTS



YEARLY OPERATING COSTS

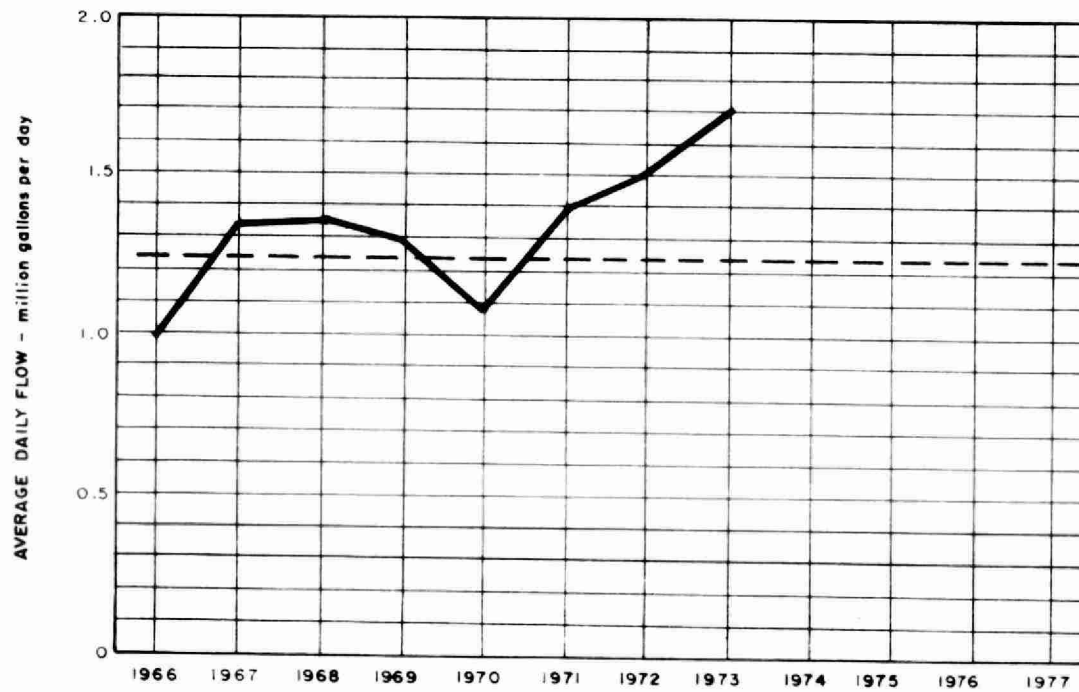
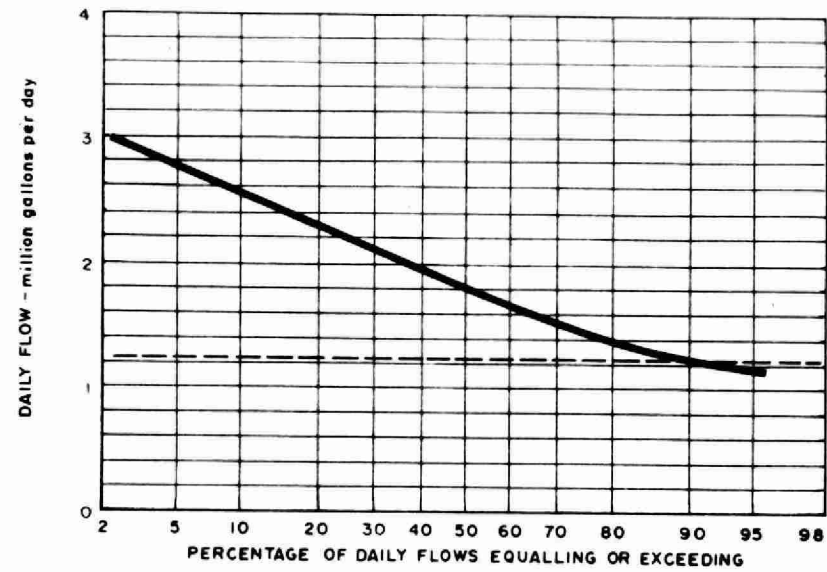
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	¢/lb BOD
1968	497	\$ 28,281	57	17
1969	488	35,187	72	26
1970	485	34,076	70	14
1971	511	37,863	74	24
1972	548	43,146	79	22
1973	608	44,145	73	14

OPERATING EXPENDITURES

SALARIES AND WAGES	<u>\$22, 971</u>
EMPLOYEE BENEFITS	<u>992</u>
TRANSPORTATION & COMMUNICATIONS	<u>843</u>
SERVICES	<u>7, 888</u>
SUPPLIES AND EQUIPMENT	<u>11, 451</u>
ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	<u>0</u>
TRANSFER PAYMENTS	<u>0</u>
OTHER TRANSACTIONS	<u>0</u>
TOTAL	<u>\$44, 145</u>

PROCESS DATA

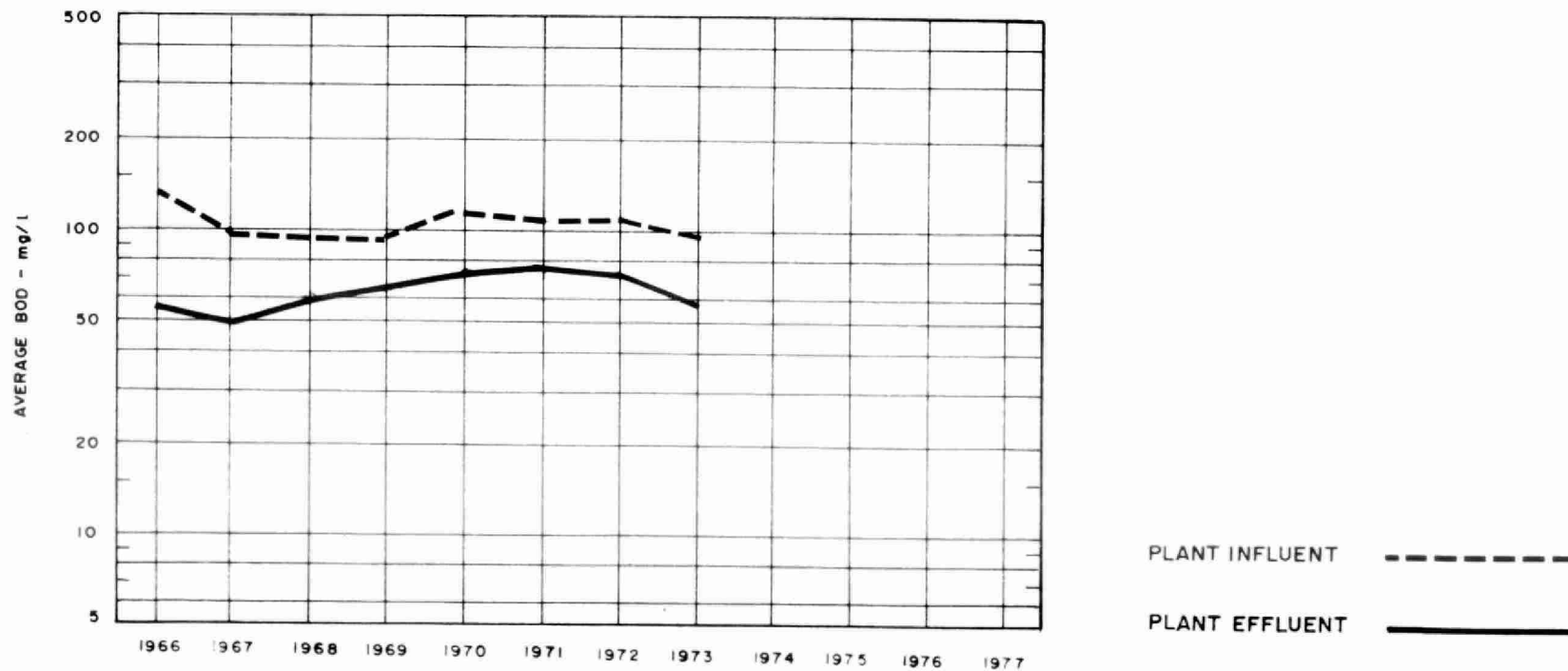
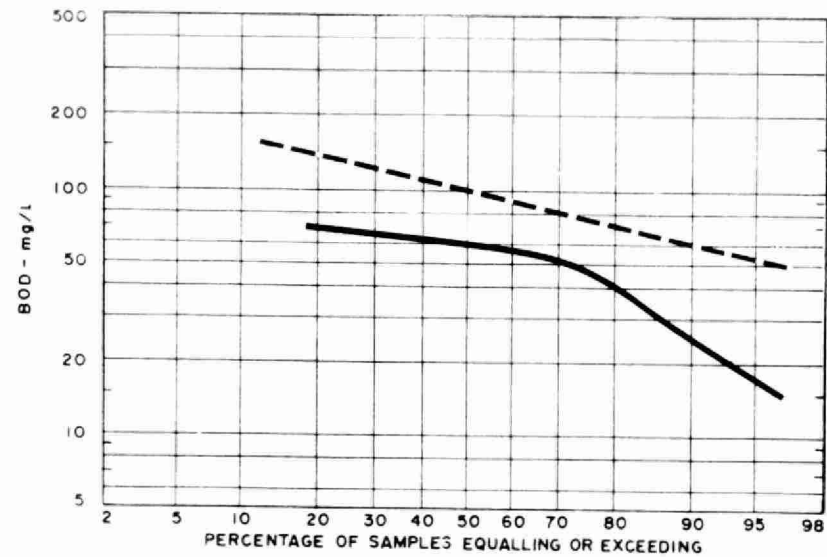
FLows



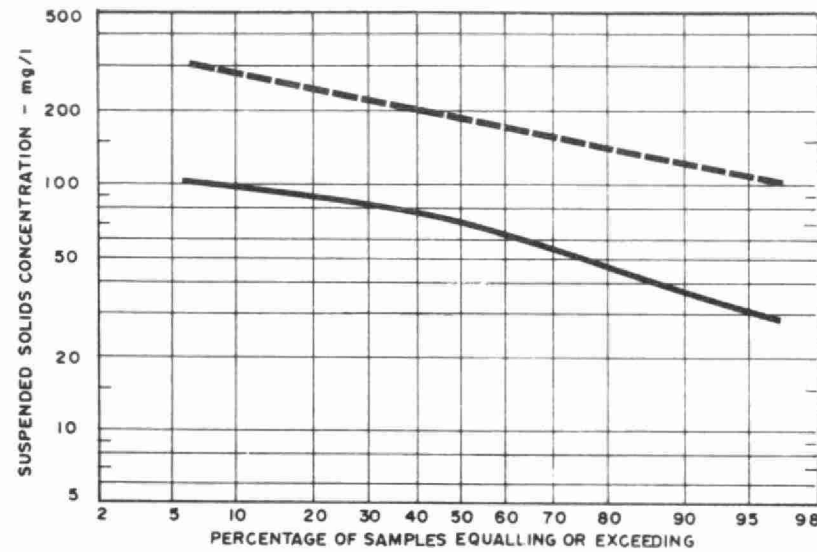
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	52	1.7	2.8	92	87	5	3	190	95	50	49	9.3	10.0
FEB	44	1.6	2.9	100	60	43	20	280	70	75	94	18.0	24.0
MAR	68	2.2	3.2	80	63	21	12	190	78	60	78	16.0	16.0
APR	54	1.8	3.2	62	46	26	86	200	68	66	71	11.0	9.1
MAY	48	1.6	2.1	78	55	29	11	170	65	62	50	14.0	11.0
JUNE	42	1.4	1.7	120	75	35	17	180	75	57	42	9.9	10.0
JULY	43	1.4	2.2	120	42	66	36	250	60	76	82	7.1	6.1
AUG	49	1.6	1.9	160	65	59	47	180	70	61	54	13.0	8.2
SEPT	47	1.6	2.5	98	45	54	25	170	53	68	53	14.0	13.0
OCT	48	1.6	2.1	140	70	48	31	170	50	71	59	12.0	10.0
NOV	59	2.0	3.6	70	48	31	13	190	53	72	80	16.0	9.6
DEC	54	1.8	2.4	50	42	24	7	190	63	66	68	16.0	13.0
TOTAL	608	-	-	-	-	-	308	-	-	-	780	-	-
AVG.	51	1.7	MAXIMUM 3.6	95	57	40	26	190	67	65	65	13.0	12.0
No. of Samples	-	-	-	24	24	-	-	23	23	-	-	24	24

BIOCHEMICAL OXYGEN DEMAND

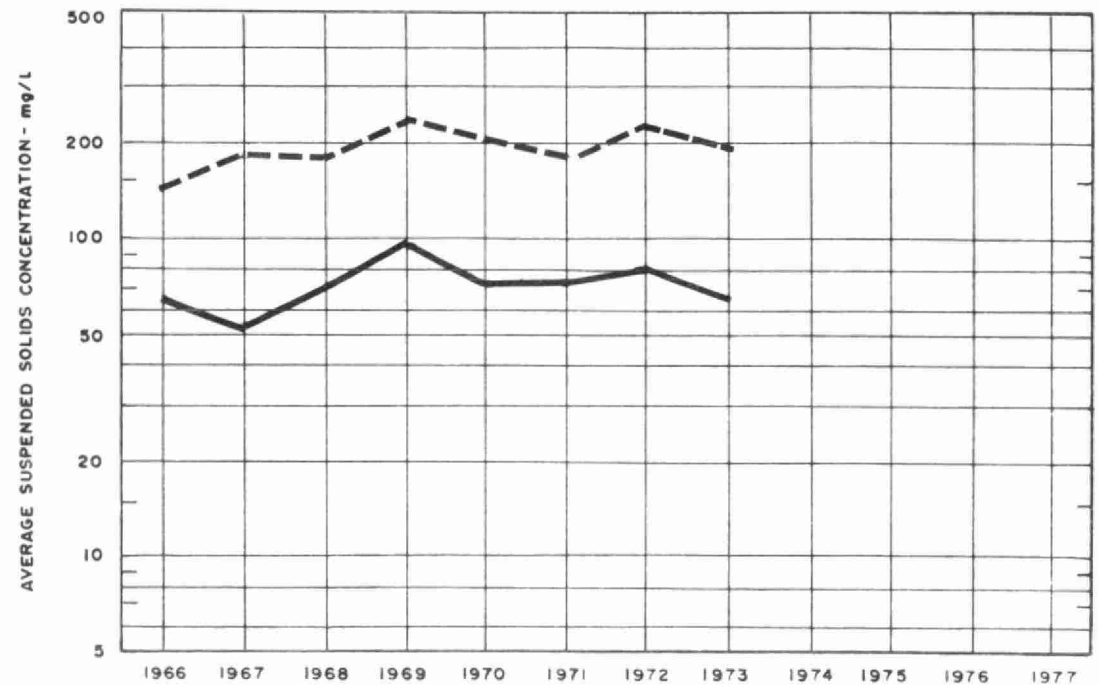


SUSPENDED SOLIDS

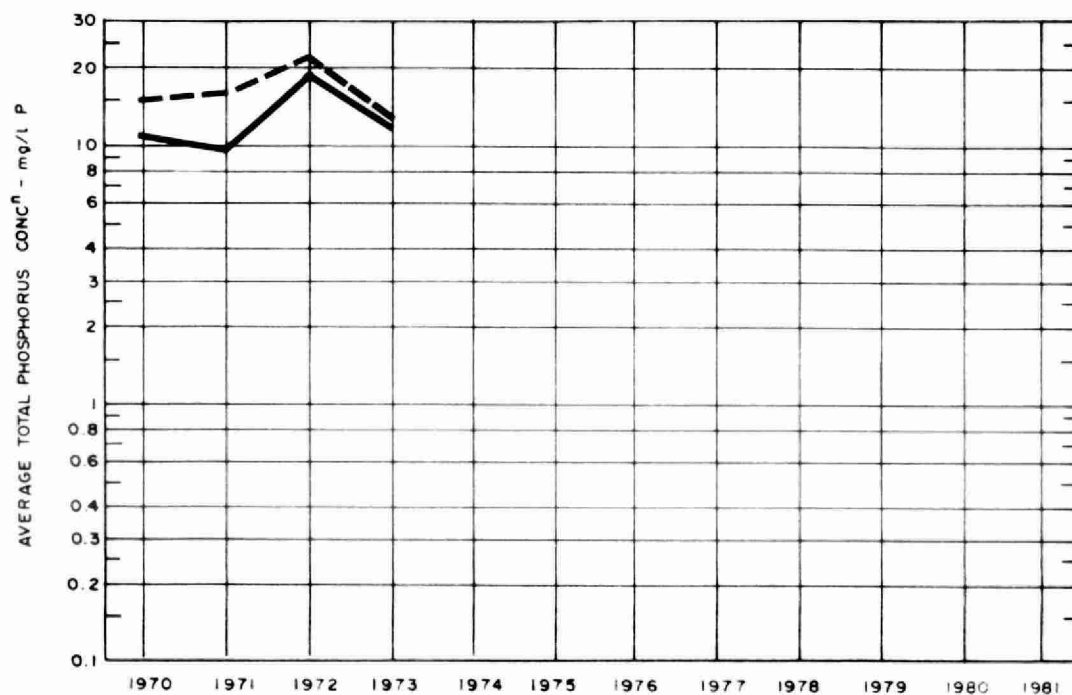
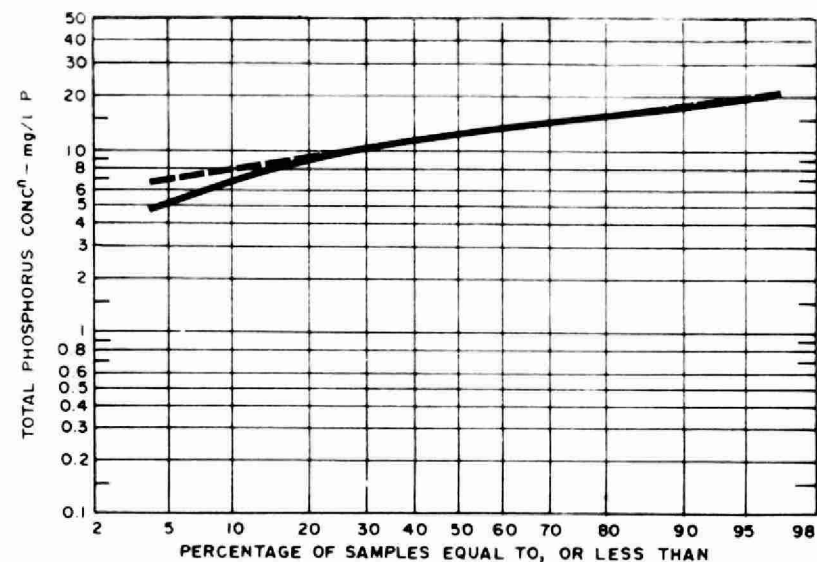


PLANT INFLUENT - - - - -

PLANT EFFLUENT —————



PHOSPHORUS

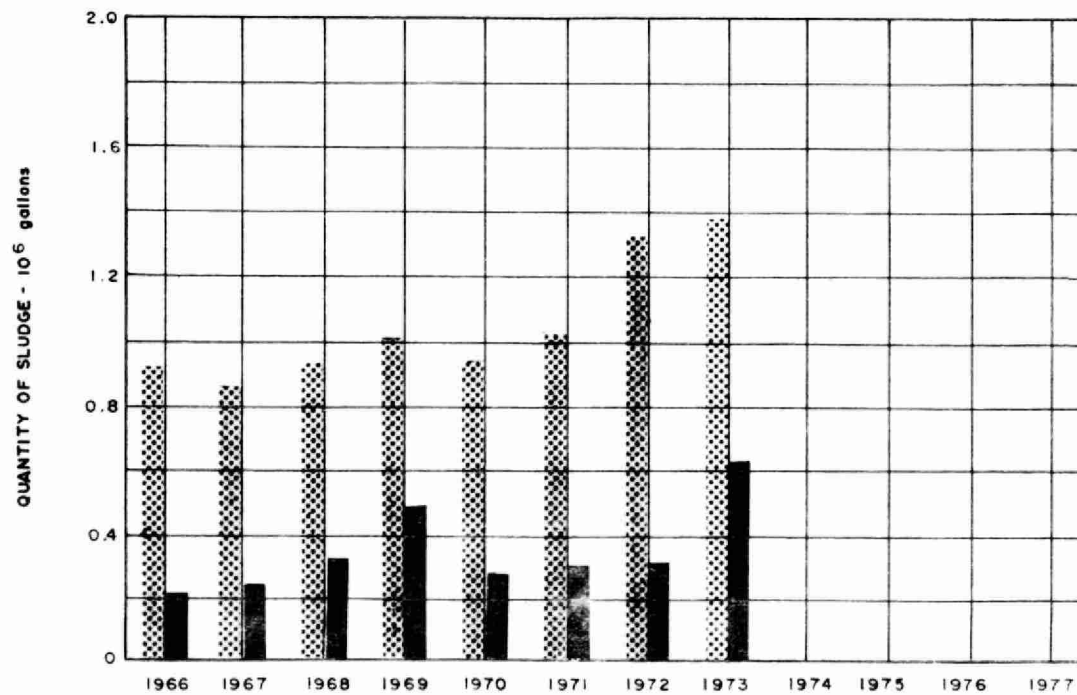
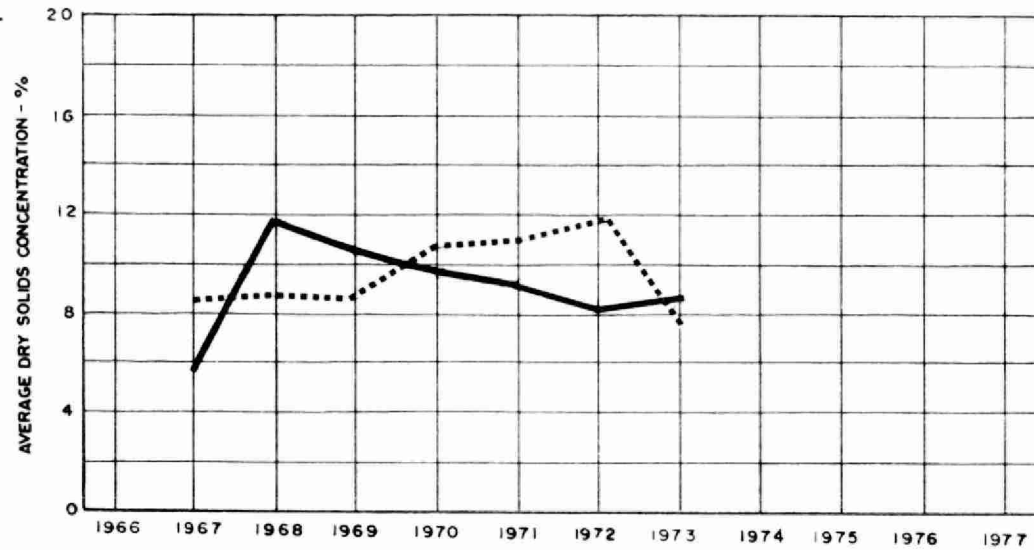


PLANT INFLUENT -----

PLANT EFFLUENT —————

DIGESTION

RAW SLUDGE
DIGESTED SLUDGE ———



RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED ———

TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	23	4.2	8.2	108	8.2	30	28	9.2	15	1.2	168
FEB	28	2.9	6.6	98	7.5	45	25	8.5	24	0.2	143
MAR	73	4.1	6.0	112			32			0.4	192
APR	33	3.6	6.6	100	8.1	44	65	9.4	30	0.2	388
MAY	34	3.3	6.9	153	10.8	5	184	11.2	29	0.2	1096
JUNE	28	3.1	7.4	105	7.3	46	21	8.2	36	0.3	126
JULY	61	3.2	7.3	111	7.0	43	45	8.0	34	0.2	266
AUG	111	3.5	7.1	110			38	8.3			224
SEPT	103	3.6	7.7	112	8.1	44	43	8.4	26	2.1	252
OCT	113	4.1	8.5	120	7.4	33	50	8.0	28		294
NOV	58	3.8	6.4	122			43	8.0	29		252
DEC	22	3.1	5.7	137	6.5		50	8.8			294
TOTAL	687	42.5	—	1388	—	—	624	—	—	—	3695
AVG.	1.1 cubic feet/mil gal	3.5	6.9	116	7.9	36	52	8.6	28	0.6	308

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